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10/736,955	12/15/2003	Jizheng Xu	MS1-1694US	5538

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EXAMINER	
WERNER, DAVID N	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/736,955	XU ET AL.	
	Examiner	Art Unit	
	David N. Werner	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20070831*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action for US Patent Application 10/736,955 is in response to communications filed 31 August 2007, in reply to the prior Office action of 02 May 2007. Currently, claims 1-36 are pending.

2. In the Office action of 02 May 2007, claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 22, 23, 25, 26, 28, 29, 31, 32, 34, and 35 were provisionally rejected for obviousness-type double patenting with copending application 10/725,762, claims 10-36 were rejected under 35 U.S.C. 101 as non-statutory, claim 29 was rejected under 35 U.S.C. 112, second paragraph, as lacking antecedent basis for a limitation, claims 1, 2, 4, 5, 7-11, 13, 14, 16-20, 22, 23, 25-29, 31, 32, and 34-36 were rejected under 35 U.S.C. 103(a) as obvious over US Patent 6,014,693 A (Ito et al.) in view of US Patent 5,953,506 A (Kalra et al.), and claims 3, 6, 12, 15, 21, 24, 30, and 33 were rejected under 35 U.S.C. 103(a) as obvious over Ito et al. in view of Kalra et al. and in view of "A Framework for Efficient Progressive Fine Granularity Scalable Video Coding" (Wu et al.). The drawings and specification were objected to on formalities.

Drawings

3. Replacement drawings were received on 31 August 2007. These drawings are acceptable.

Terminal Disclaimer

4. The terminal disclaimer filed on 31 August 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of co-pending application 10/725,762 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

5. Applicant's amendments to the specification have been fully considered. All objections based on formalities are withdrawn.

6. Applicant's amendments to the claims have been fully considered. All rejections under 35 U.S.C. 112, second paragraph, and 35 U.S.C. 101 are withdrawn.

Response to Arguments

7. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 2, 4-11, 13-20, 22-29, and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over "An End to End Software Only Scalable Video Delivery System" (Chaddha et al.), in view of US Patent 5,687,095 A (Haskell et al.). Chaddha et al. teaches a video delivery system which presents scalable video. Regarding claim 1, Chaddha et al. receives an original 640 x 480 image, and decimates it to a 320 x 240 image, and further to a 160 x 120 image (§ 3.1). This corresponds with the claimed "decoding an enhancement layer bitstream". Note that throughout Chaddha et al., a 160 x 120 image is referred to as a "base layer", and a higher-resolution image is referred to as an "enhancement layer". A server delivering video over a network monitors the network to determine the packet transmission rate and adjusts the quality of the video bitstream accordingly (§ 3.5). This corresponds with the claimed "determining data throughput characteristics" and "calculating a new HRQB based on the data throughput characteristics". To generate an enhancement layer bitstream, the base layer image is upsampled and subtracted from an original high-resolution image, and the error data is transmitted (§ 3.1). This corresponds with the claimed "encoding the enhancement layer bitstream". However, in Chaddha et al., a base layer must be completely decompressed, recompressed, and upsampled to generate an enhancement layer stream, but in the present invention, the base layer is not decoded.

Haskell et al. teaches a video transcoder. Regarding claim 1, whereas a typical conventional transcoder comprises little more than a video decoder with an output coupled to the input of a video encoder, in Haskell et al., a video multiplex decoder does not fully decode video, but instead leaves it in the frequency domain (column 4: lines

16-67). The DCT coefficients of a video are manipulated to match output video encoded by a subsequent video multiplex encoder to a target bit rate (column 5: lines 17-45). Methods for manipulating the frequency domain DCT video data include requantization or zeroing (column 5: lines 48-51). Since the video input into the transcoder is not decoded, this corresponds with the claimed omission of a decoding base layer video.

Chaddha et al. discloses the claimed invention except for not decoding a base layer in a transcoding process. Haskell et al. teaches that it was known to not fully decode video in a transcoder. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a frequency-domain transcoder to the video delivery system of Chaddha et al., as taught by Haskell et al., since Haskell et al. states in column 2: lines 47-54 that such a modification would reduce the processing delay in a transcoder.

Regarding claims 10, 19, and 28, Chaddha et al. is in a software format (§ 1).

Regarding claims 2, 11, 20, and 29, in Chaddha et al., the transcoded video, comprising a base layer plus error data from an enhancement layer, may be delivered at up to 130 frames per second for 320 x 240 video, or 40 frames per second for 640 x 480 video (§ 5).

Regarding claims 4, 13, 22, and 31, in Chaddha et al., video may be transcoded from an original bit rate of 19.2 kbps to 2 Mbps (§ 5) to a new rate down to 10 Kbps (§ 6), and regarding claims 5, 14, 23, and 32, the video may be transcoded to a new rate up to 10 Mbps (§ 6).

Regarding claims 6, 15, 24, and 33, in Haskell et al., motion vectors are sent directly from a video multiplex decoder to a video multiplex encoder in a transcoder without fully decoding the video (column 4: lines 34-37; 58-62).

Regarding claims 7, 16, 25, and 34, in Chaddha et al., video is delivered in packets over a network (§ 3.5).

Regarding claims 8, 17, 26, and 35, in Chaddha et al., base layer video is interpolated to encode high-resolution enhancement layer video (§ 3.1).

Regarding claims 9, 18, 27, and 36, in Chaddha et al., a client's subscription type, along with bandwidth, may be used to determine the quality of video delivered (§ 3.8).

10. Claims 3, 12, 21, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaddha et al. in view of Haskell et al. as applied to claims 1, 10, 19, and 28 above, and further in view of Wu et al. The present invention discloses encoding video using a fine granular scalable technique, but Chaddha et al. only teaches using an interpolation technique to build video enhancement layers.

Wu et al. teaches the progressive fine granularity scalable (PFGS) video coding technique. Regarding claims 3, 12, 21, and 30, the PFGS encoding system achieves a multi-layered video with a base layer and multiple enhancement layers, in accordance with the present invention (abstract). The encoded frames in high-level enhancement layers are predicted from previous enhancement layers, including motion vector information.

Chaddha et al., in combination with Haskell et al., discloses the claimed invention except for encoding video in a FGS technique. Wu et al. teaches that it was known to encode scalable video with PFGS. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a PFGS processor into the video delivery system of Chaddha et al., as taught by Wu et al., since Wu et al. states in Section I that such a modification would improve motion estimation accuracy by generating motion vectors from high-quality references.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 5,802,226 A (Dischert et al.) teaches a video mixer that operates on frequency-domain video. US Patent 5,903,673 A (Wang et al.) teaches a video encoder that adjusts a quantization level based on available transmission bandwidth. US Patent 6,337,881 B1 (Chaddha) teaches a video compression system that produces scalable data. US Patent 6,345,279 B1 (Li et al.) teaches a transcoder that produces multiple transcoded outputs depending on the capabilities of client devices. US Patent 6,43,4 746 B1 (Nagashima et al.) teaches a video transmission system that transmits video having different quality levels depending on a payment level. US Patent 6,526,099 B1 (Christopolous et al.) teaches a frequency domain transcoder. US Patent 6,564,262 B1 (Chaddha) teaches a multimedia broadcaster that transmits data having a base layer and enhancement layers. US Patent Application Publication 2001/00437344 A1 (Hieda) teaches a hierarchical video

transmission system. US Patent Application Publication 2002/0094025 A1 (Hanamura et al.) teaches a video transcoder that outputs a base bit stream and differential bit streams. "RMX: Reliable Multicast for Heterogeneous Networks" (Chawathe et al.) teaches a scalable multicast system. "Robust Internet Video Transmission Based on Scalable Coding and Unequal Error Protection" (Horn) teaches a scalable video coder designed for Internet transmission. "Scalable Video Transmission for the Internet (Horn et al.) teaches an H.263-based scalable transmission system with adjustable spatial and temporal resolution. "Adaptation Techniques for Ubiquitous Internet Multimedia" (Margaritidis et al.) discusses multiple Internet multimedia delivery strategies. "Tutorial MPEG-2 Video Compression" (Tudor) teaches a scalable MPEG-2 coder. "Progressive Fine Granular Scalable (PFGS) Video Using Advance-Predicted Bitplane Coding (APBIC)" (Wu et al.) teaches additional information on PFGS coding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Werner whose telephone number is (571) 272-9662. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DNW

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